Excerpt: Webinar on “Grid Code Requirements and Studies for RE Integration”

This excerpt summarizes our September 6, 2025, webinar on "Grid Code Requirements and Studies for RE Integration." As a CEA-recognized center, we provide practical tools for reliable RE integration. The session covered interactive knowledge sharing, quiz and Q&A with very positive feedback from participants. View the full recording on our YouTube channel or register for upcoming sessions to strengthen your grid compliance!

The Role of Grid Codes: Ensuring Stable RE Integration

Consider a 100 MW solar farm disconnecting during a voltage dip—grid codes prevent this by setting standards for ride-through. Grid codes for RE defines the rules to be followed by RE generators to ensure stability of the grid. There are requirements related to reactive power, active power control, frequency support, power quality, and many others. The grid codes have evolved to handle RE variability, maintaining grid stability amid India's 500 GW non fossil fuel target for installed capacity by 2030. Needs: Harmonize operations, protect equipments, enable high RE penetration without voltage and frequency fluctuations and blackouts.

Our September 6, 2025, STEAG India webinar attracted participants from PAN India level, and following requirements in grid codes of Germany, India and South Africa were discussed.

- Reactive Power Control – Voltage Dependency
- Reactive Power Control – Active Power Dependency
- Frequency Requirements – Steady State / Limited time operation
- Active Power Control – Fixed Active Power, Ramp Active Power and Frequency Response
- Fault Ride Through – LVRT / HVRT / Voltage support
- Power Quality – Harmonics / Flicker

Grid Compliance Studies Using Power System Analysis Softwares

Studies: In order to assess grid compliance, power system studies using software like DIgSILENT PowerFactory, PSS/E , ETAP, etc. is conducted for load flow, short-circuit, reactive power compensation, dynamic response for active and reactive power, LVRT/ HVRT, etc.

Live Demo on PowerFactory software was provided by creating a 13.5 MW solar park and some of the grid code requirements were checked using the software. V-Q, P-Q curves were created to check reactive power compensation, Harmonic load flow was conducted to check whether THD and HDs are within limits or not, Dynamic response (through controllers) were assessed by simulating faults to check over frequency and LVRT response.

Why STEAG India? Your Resource for Grid-Ready RE

Blending German engineering with Indian expertise, STEAG India's CEA-accredited webinars empower participants on PAN India level, yielding positive results.

Similar webinars with interactive Q&A sessions will be arranged in the future. Please participate—we'll also repeat some topics with the latest updates. We look forward to your overwhelming participation!

STEAG India: Integrating Renewables, Stabilizing Grids.